

REMARKS

Claims 1-5 are pending in this application, of which claims 1 and 4 have been amended.
No new claims have been added.

The Examiner has objected to the drawings for failure to show “fan blades provided on a side wall of the crank pulley facing away from the engine side wall, said side wall extending radially outwards from said one end of the crankshaft to the peripheral wall of the crank pulley...”, as recited in claim 1.

Accordingly, claim 1 has been amended to clarify that it is the side wall of the crank pulley which extends radially outwards from said one end of the crankshaft to the peripheral wall of the crank pulley.

These features are clearly shown in Fig. 3, where the cooling fan blades 32a face away from the engine E.

Claim 4 stands rejected under 35 USC §112, second paragraph, as indefinite.

Accordingly, claim 4 has been amended to recite a plurality of projections. Newly-added claim 5, similar to claim 4, recites a plurality of channels.

Thus, the 35 USC §112, second paragraph, rejection should be withdrawn.

Claim 1 stands rejected under 35 USC §103(a) as unpatentable over U.S. Patent 4,288,712 to Hagenlocher et al. (hereinafter “**Hagenlocher et al.**”) in view of JP 4,222,436A to Kusase et al. (hereinafter “**Kusase et al.**”).

Applicants respectfully traverse this rejection.

Hagenlocher et al. discloses an alternator structure for an internal combustion engine,

U.S. Patent Application Serial No. 09/865,514

where Fig. 1 shows a crank pulley 28 fixed to a crankshaft, and cooling fan blades 27 provided on a side wall of the crank pulley 28.

The Examiner has admitted that Hagenlocher et al. does not disclose the structure of the stator and rotor, but has cited Kusase et al. for teaching this feature.

In Hagenlocher et al., the cooling fan blades 27 are attached to a side wall of crank pulley 28 facing toward the engine, which is in contrast to the present invention, in which the cooling fan blades are provided on a side wall of the crank pulley facing away from the engine.

Accordingly, claim 1 has been amended to clarify this distinction.

Furthermore, because Hagenlocher et al. discloses a V-belt type crank pulley 28, it would not be possible for an inner face of a peripheral wall of the crank pulley to support a rotor, as recited in claim 1 of the instant application.

Applicant submits that the basic structure of the primary reference, Hagenlocher et al., is totally different from that of the present invention as defined in claim 1. Moreover, Hagenlocher et al. does not include sufficient teachings therein that would enable those skilled in the art to combine the teachings of the secondary reference, Kusase et al., into it. The following additional significant deficiencies in Hagenlocher et al. that would prevent those skilled in the art to arrive at the claimed invention even together with the teachings of Kusase et al. are noted below:

- (1) The shape of crank pulley 28 of Hagenlocher et al. is quite different from that of the present invention and does not permit an annular space to be defined therein

for housing elements of a motor/generator.

- (2) Fan 27 of **Hagenlocher et al.** is not provided on a side wall of the pulley 28 but is instead interposed between pulley 28 and bearing 16 on the machine shaft 18.

Pulley 28 is not formed with a sidewall on which fan can be provided.

- (3) Stator 15 is positioned radially outwardly of rotor 19, 21, 22 and this is not of “an outer rotor type” as exclusively recited in our claim 1.

- (4) Between the alternator comprising stator 15 and rotor 19, 21, 22, and the engine wall E, there are arranged electrical components 24, 25 and 26 which are accommodated inside covers 13, 31. Slip rings 25 are associated with the right end of machine shaft 18 which acts to rotate rotor 19, 21, 22. This arrangement does not permit the idea of supporting the stator 15 on the engine wall E, as required in claim 1 of the application.

Thus, the 35 USC §103(a) rejection should be withdrawn.

Claim 2 stands rejected under 35 USC §103(a) as unpatentable over **Hagenlocher et al.** in view of **Kusase et al.** and **Gritter et al.** (previously applied).

Applicant respectfully traverses this rejection.

Gritter et al. discloses a ferrite permanent magnet electrical machine and the application thereof within vehicle traction drives.

Gritter et al. fails to teach, mention or suggest the limitations of claim 1, from which claim 2 depends.

U.S. Patent Application Serial No. 09/865,514

Thus, the 35 USC §103(a) rejection should be withdrawn.

Claims 3/1 and 4/1 stands rejected under 35 USC §103(a) as unpatentable over **Hagenlocher et al.** in view of **Kusase et al.** and **Kamiyama et al.** (previously applied).

Applicant respectfully traverses this rejection.

The Examiner has admitted that the references discussed above do not teach a shield covering on the stator facing the air inlet passage and projections from the circumferential direction of the outer periphery of the stator, but has cited **Kamiyama et al.** for teaching a guide fin 133 performing such a function.

Kamiyama et al., like the other cited references, fails to teach, mention or suggest the limitations recited in the amendments to claim 1, from which claims 2-4 depend.

Thus, the 35 USC §103(a) rejection should be withdrawn.

Claims 3/2 and 4/2 stands rejected under 35 USC §103(a) as unpatentable over **Hagenlocher et al.** in view of **Kusase et al.**, **Gritter et al.** and **Kamiyama et al.**

Applicant respectfully traverses this rejection.

As noted above, none of these references teaches, mentions or suggests the limitations of claim 1, from which these claims depend.

Thus, the 35 USC §103(a) rejection should be withdrawn.

In view of the aforementioned amendments and accompanying remarks, claims 1-5, as amended, are in condition for allowance, which action, at an early date, is requested.

Attached hereto is a marked-up version of the changes made to the claims by the current amendment. The attached page is captioned "**Version with markings to show changes made.**"

U.S. Patent Application Serial No. 09/865,514

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicant's undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, Applicant respectfully petitions for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

ARMSTRONG, WESTERMAN & HATTORI, LLP



William L. Brooks
Attorney for Applicant
Reg. No. 34,129

WLB/mla

Atty. Docket No. **010568**
Suite 1000, 1725 K Street, N.W.
Washington, D.C. 20006
(202) 659-2930



23850

PATENT TRADEMARK OFFICE

Enclosures: Version with markings to show changes made
Petition for Extension of Time

H:\HOME\letitia\WLB\01\010568\amendment mar 2003



VERSION WITH MARKINGS TO SHOW CHANGES MADE 09/865,514

IN THE CLAIMS:

Please amend claims 1 and 4 as follows:

1. (Twice Amended) An outer rotor type motor/generator housed in an annular space defined between an engine side wall and a crank pulley fixed to one end of a crankshaft of an engine, said motor / generator comprising:

a stator supported on the engine side wall; and

a rotor supported on an inner face of a peripheral wall of the crank pulley so as to face an outer periphery of the stator across an air gap,

wherein an air inlet passage is formed between the engine side wall and an opposing edge of the peripheral wall of the crank pulley so as to provide communication between the annular space and the outside of the crank pulley,

wherein cooling fan blades are provided on a side wall of the crank pulley facing away from said engine, said side wall of the crank pulley extending radially outwards from said one end of the crankshaft to the peripheral wall of the crank pulley, and

wherein air is introduced into the annular space via the air inlet passage to cool coils of the stator and the air is discharged to the outside from said cooling fan blades provided on said side wall facing away from said engine side wall by means of the cooling fan blades.

4. (Twice Amended) An outer rotor type motor/generator according to either Claim 1 or

U.S. Patent Application Serial No. 09/865,514

Claim 2,

wherein a plurality of projections [or channels] inclined towards the circumferential direction are formed on the outer periphery of the stator facing the entrance and the exit of the air gap so that the air flows generated by these projections [or channels] prevent air from entering the air gap.